

~~DA-C#~~

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT[s]: Agilent Technologies UK Limited on behalf of
David Chown, inventor

SERIAL NO.: 10/617,113 ART UNIT:

FILING DATE: July 10, 2003 EXAMINER:

TITLE: Optoelectronic Module with Integrated Loop-
Back Capability

ATTORNEY

DOCKET NO.: 871-011413-US (PAR) / 30020606 US-02

Commissioner of Patents
P.O. Box 1450
Alexandria VA 22313-1450

PETITION UNDER 37 C.F.R. 1.47(b) SOLE INVENTOR CANNOT BE FOUND

Applicant, Agilent Technologies UK Limited, hereby petitions the Commissioner to accept the filing of the above-identified U.S. Patent Application by the Applicant because the sole inventor cannot be found.

In accordance with the guidance provided by MPEP 409.03(b), Applicant submits the following:

A) A Declaration is attached signed by Dr. James Lenney an authorized representative of the Applicant.

B) The Applicant was an employer of the inventor, Mr. David Chown from 15 June 1987 to 10 June 2003.

C) A Statement of Facts is attached hereto providing proof of the pertinent facts that the inventor cannot be found.

09/09/2003 SLUANG1 00000029 10617113

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130.00 OP

D) The last known address of the inventor is as follows:

Mr. David Chown
9 Castle Lane
Hadleigh, Ipswich, Suffolk IP7 6DE
United Kingdom


E) A copy of an employment agreement is attached, executed by the inventor, showing that the inventor has agreed to assign the invention to the Applicant. Dr. James Lenney, a duly authorized representative for the Applicant, states in the attached Statement of Facts that the invention was made by David Chown while in the employ of the Applicant.

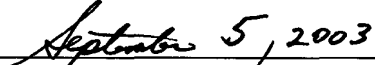
F) A filing date of May 22, 2003 is necessary to preserve the intellectual property rights of the Applicant and irreparable damage will result if those rights are lost.

The fee for this petition, set forth in 37 C.F.R. 1.17(h) as \$130.00, is also included herewith.

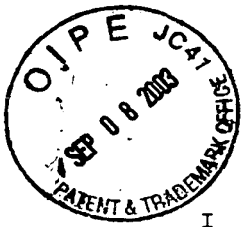
The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,


Joseph V. Gamberdell, Jr.
Reg. No. 44,695


Date

Perman & Green, LLP
425 Post Road
Fairfield, CT 06824
[203] 259-1800
Customer No.: 2512



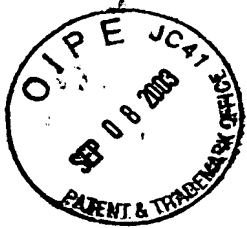
CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service on the date indicated below as first class mail in an envelope addressed to the Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Date: 9/5/03

Signature: *Doris W. Puma*

Person Making Deposit



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICANT(s): Agilent Technologies UK Limited on behalf of
David Chown, inventor

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Commissioner of Patents
P.O. Box 1450
Alexandria VA 22313-1450

STATEMENT OF FACTS UNDER 37 C.F.R. 1.47(b)

SOLE INVENTOR CANNOT BE FOUND

This statement is being filed concurrently with a petition under 37 C.F.R. §1.47(b). This statement is made as to the exact facts that are relied upon to establish the diligent effort made to secure the execution of the declaration by the nonsigning inventor for the above-identified patent application.

Dr. James Lenney, an authorized representative for the Applicant, Agilent Technologies UK Limited, having personal knowledge of the facts set forth herein says that:

1. On 4 June 2003, I sent a copy of a Declaration, Assignment, the application as filed, a stamped, self addressed envelope, and a first cover letter requesting review and execution of the documents and a reply as soon as possible, to Mr. David Chown at 9 Castle Lane, Hadleigh, Ipswich, Suffolk IP7 6DE, United Kingdom. These documents were sent return receipt requested. The return receipt letter

was returned, indicating receipt of the mailing on 6 June 2003.

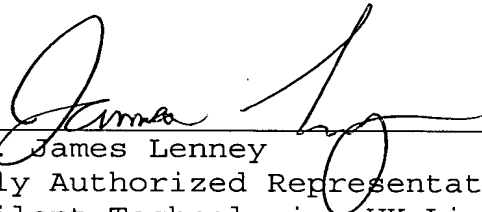
2. On 31 July 2003, I sent another copy of the Declaration, Assignment, the application as filed, a stamped, self addressed envelope, and a second cover letter requesting review and execution of the documents to Mr. David Chown at 9 Castle Lane, Hadleigh, Ipswich, Suffolk IP7 6DE, United Kingdom. The return receipt letter was returned, indicating receipt of the mailing on 7 August 2003.

3. As of 27 August 2003 I have received no reply to any of the aforementioned mailings.

4. The invention was made by David Chown while in the employ of the Applicant, Agilent Technologies UK Limited.

5. Exhibits 1-6 are provided in support of the above statements.

Respectfully submitted,


Dr. James Lenney
Duly Authorized Representative for the Applicant
Agilent Technologies UK Limited
Legal Department
Eksdale Road, Winnersh Triangle
Wokingham
Berkshire RG41 5DZ
UNITED KINGDOM

27 August 2003
Date

EXHIBITS

- 1) A copy of a first cover letter to Mr. David Chown dated 4 June 2003, stating that a Declaration, Assignment, and copy of the application are enclosed, and requesting Mr. Chown's signature on the appropriate documents.
- 2) Copies of the first Receipt for Certified Mail and a Return Receipt letter showing a delivery date of 6 June 2003 and Mr. Chown's signature.
- 3) A copy of the second cover letter to Mr. David Chown dated 31 July 2003, stating that a Declaration, Assignment, and copy of the application are enclosed, and requesting Mr. Chown's signature on the appropriate documents.
- 4) Copies of the second Receipt for Certified Mail and a Return Receipt letter showing a delivery date of 7 August 2003 and Mr. Chown's signature.
- 5) A copy of an Employee Confidentiality Agreement dated 20 December 2000 and signed by Mr. David Chown confirming ownership of all intellectual property rights (including patents) arising out of work carried out by Mr. Chown during the course of his employment with Agilent Technologies shall belong to Agilent Technologies.
- 6) A copy of the original Invention Proposal received on 9 May 2002 indicating Mr. David Chown as an inventor.

Report Mark Tracking No:
SJ 5940 0293 5GB



Agilent Technologies

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David Chown
9 Castle Lane
Hadleigh
Suffolk IP7 6DE

4th June 2003

Dear David

DECLARATION AND POWER OF ATTORNEY for inventor's signature
Case No. 30020591: "Transmission of Supervisory Data in an Optical Communication System"

Case No. 30020606: "Optoelectronic Module With Integrated Loop-back Capability"

Case No. 30020642: "Optoelectronic Module With Integrated Variable Optical Attenuator"

You may recall that nearly a year ago Agilent filed initial patent applications in respect of the cases identified above. We have now reached the stage where, to request corresponding patent protection abroad, we have to file applications in each of the countries of interest, and following discussions with the patent coordinator it has been decided to include the USA for your inventions. In the case of the USA the application must be signed by the inventor(s).

I enclose paper copies of the Declaration, Specification and Drawings for each case and I should be very grateful if you would review, sign and return the three sets of documents as soon as possible.

In respect of each application please review the specification (particularly the claims) and drawings (as required by the Declaration), and also read the Declaration itself. If you are happy that everything is in order, sign and date the Declaration in the space provided just under your printed name on the second page.

Please then return the entire set of documents for each case (Declaration, specification and drawings) to me in the Legal Department in the enclosed addressed pre-paid envelope.

If you have any queries, please don't hesitate to contact me on Tel. 0118 927 4210.

Thanks very much and my best regards,

James Lenney

PP James Lenney
Legal Department – IP Practice Group



Date: 30 June 2003
Your Ref:
Our Ref: 1-487608455
Track Ref: SJ599002935GB



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Mrs Pauline Jones
Aglient Technologies UK Ltd
Eskdale Road
Winnersh
WOKINGHAM
RG41 5DZ

Dear Mrs Jones

Thank you for your enquiry received on 26th June 2003 about a Special Delivery letter, reference number SJ599002935GB, addressed to:

David Chown
9 Castle Lane
Hadleigh
IPSWICH
IP7 6DE

I can confirm that this item was delivered as addressed on and a photocopy of the signature we obtained is enclosed for your use.

Thank you for using our Special Delivery service and if we can be of any more help, please contact us again.

Yours sincerely

David Bradeley

David Bradeley
Customer Service Advisor

Enclosure: Copy of signature

To ensure that we maintain the highest possible standards the service we provide to you is monitored on our behalf by a research agency. Each month telephone interviews are conducted with a sample of the customers with whom we have been in contact. If you would prefer not to be contacted please call Freephone 0800 652 5900 within 7 days of the date of this letter and quote the reference above.

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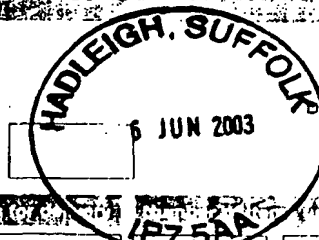
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F.A.O. DAVE BRADLEY

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Time 4 Print name D. CHOWN
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P4550 Revised October 98

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Collected 1/8/03 Office sending copy of signature

David Chown
9 Castle Lane
Hadleigh
Suffolk IP7 6DE

31st July 2003

Dear David

DECLARATION AND POWER OF ATTORNEY for inventor's signature

Case No. 30020591: "Transmission of Supervisory Data in an Optical Communication System"

Case No. 30020606: "Optoelectronic Module With Integrated Loop-back Capability"

Case No. 30020642: "Optoelectronic Module With Integrated Variable Optical Attenuator"

As you know from my earlier letter of 4th June, Agilent recently made foreign filing decisions on three cases for which you are the inventor, to file for patent protection in the USA. Also, that the US Patent Office requires, in respect of each patent application, that we make our best efforts to obtain a Declaration and Power of Attorney signed by the inventor.

I hope you will appreciate that the Legal Department is normally able to prepare filing documents and obtain any necessary signatures from inventors well in advance of the filing deadlines. Now, more than ever in these difficult times we are making every attempt to cause as little inconvenience as possible to inventors who understandably have more pressing priorities. It was therefore, most unfortunate that we did not have an opportunity to prepare the Declarations for you to sign in respect of these three cases before you left Agilent.

Nonetheless, I hope that I can trust to your goodwill in this situation and have therefore enclosed again the three Declarations and specifications for your review and signature. Once signed, they can be posted in the prepaid addressed envelope, which is also enclosed.

I would be more than happy to discuss the situation and any queries you may have if you would like to contact me on Tel. 0118 927 4210.

Many thanks for your cooperation and my best wishes for the future,

James Lenney
Legal Department – IP Practice Group



7/8/03

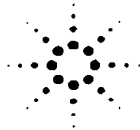
P 01



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EMPLOYEE CONFIDENTIALITY AGREEMENT

SECURITY OF INFORMATION AND INTELLECTUAL PROPERTY PROVISIONS

As part of my conditions of employment with Agilent Technologies UK Limited, (Agilent Technologies) I undertake to abide by the following provisions:

INFORMATION This provision concerns technical, commercial and other confidential business information (including trade secrets and know-how not generally known to the public) which is acquired or produced by me at any time during the course of my employment by Agilent Technologies (whether recorded on any medium or not).

I agree in respect of such information, both during and after my employment with Agilent Technologies:

- * not to disclose it to any third party (including any future employer) without the express written permission of Agilent Technologies;
- * to disclose it only to other Agilent Technologies' employees who are authorised to receive such information and need it for the effective performance of their duties;
- * to use it only in the performance of my duties for Agilent Technologies and not to use it for personal or private gain, in any future employment outside Agilent Technologies or in any manner which may lead to unauthorised use;
- * to ensure that any such information is not left unattended in a location where it can be seen or studied by any unauthorised person.

PHYSICAL ITEMS All records, whether held in written form, electronically or otherwise relating directly or indirectly to information referred to above (including documents, manuals, emails, laboratory notebooks, program listings, files, mailing lists and organisational charts) and all items embodying such information (including software, floppy discs, compact discs, digital video discs, prototypes, instruments, equipment and components thereof) shall, for the purposes of this agreement, be taken to be confidential and the property of Agilent Technologies. I agree to return to Agilent Technologies upon termination of my employment, any such physical items in my possession or borrowed by me.

OWNERSHIP OF RIGHTS All intellectual property rights (including patents, designs, copyright and IC mask rights) arising out of work carried out by me during the course of my employment with Agilent Technologies shall belong to Agilent Technologies. Inventions possibly qualifying for protection shall be communicated to Agilent Technologies promptly and in writing.

EXPLOITATION I acknowledge that Agilent Technologies shall have the exclusive rights of exploitation in any ideas or work products produced by me during the course of my Agilent Technologies employment. I also agree that I shall not, without prior written consent of Agilent Technologies, seek to exploit outside of Agilent Technologies any idea, or work product that utilises Agilent Technologies confidential information or relates directly to Agilent Technologies' business.

Date 20-12-2004

Your signature [Signature] Print Name D. CHAIN



Agilent Technologies

INVENTION PROPOSAL

PDNo: 30020606

DATE RCVD:

9/5/02

PAGE ONE OF 8

ATTORNEY

JPR

Instructions: The information contained in this document is **AGILENT CONFIDENTIAL** and may not be disclosed to others without prior authorization. Submit this document to the Intellectual Property Practice Group of the Agilent Technologies Legal Department as soon as possible.

No patent protection is possible until a detailed patent application is authorized, prepared, and submitted.

| | | | | |
|--|-----------|---------------|--------|------------------------------|
| Descriptive Title of Invention: Optoelectronic module with integrated loop-back capability | | | | |
| Name of Agilent Technologies Division/Lab and related Project: OND / ICO PLUTO | | | | |
| Related Product Name/Number (if known): | | | | |
| Anticipated date and location of all the following (if applicable): i) first publication outside Agilent Technologies of information describing the invention ii) first demonstration/use of prototype embodying the invention to non-Agilent personnel iii) release of product embodying the invention | | | | |
| Contractual aspects: If the invention was made other than in the course of normal in-house Agilent R&D please give brief details, for example if the invention was made: i) in a joint R&D programme ii) during the course of developing a product for a particular customer | | | | |
| Description of Invention: <i>Please preserve all records of the invention and supply a brief description covering:</i> A. Technical problem addressed by the invention B. Prior solutions (if any) and their disadvantages C. Solution offered by the invention and advantages of the invention over what has been done before D. Brief description of how to implement the invention (please include diagrams, but avoid colour) | | | | |
| Inventor <input type="checkbox"/> Submitter <input checked="" type="checkbox"/> | | | | |
| Employee No. | Full Name | Andrew Harker | Telnet | 3125319 Entity & Lab OND/ICO |
| Inventor <input checked="" type="checkbox"/> Submitter <input type="checkbox"/> | | | | |
| Employee No. | Full Name | David Chown | Telnet | 3125205 Entity & Lab OND/ICO |

To find your IP Attorney see Locate Legal Staff on the Agilent Legal website (<http://legal.agilent.com/>), or call Peter Kurz, Telnet 778-7145

A. Technical problem addressed by the invention

In optical telecommunication systems bit error ratio (BER) and uptime are important measures of the quality of the system, for example some system elements are required to have uptimes of 99.995% or 99.999%, including both planned and unplanned downtime.

An important way of ensuring high uptimes is to continually monitor the performance of the system elements to locate faults, allowing them to be put right quickly, and to identify defects before they become faults allowing them to be corrected without any unplanned downtime.

A way of monitoring the performance of system elements is by loop-back testing, in which a signal destined for a remote location is instead directed to a nearby receiver, in the case of a transceiver the signal launched from its transmitter may be returned to its receiver. Often the signal is attenuated to simulate the losses in the optical telecommunication system.

Generally loop-back testing requires a technician to physically remove the connectors of the optical telecommunication system and replace them with a patchcord, or the connectors of a variable optical attenuator (VOA). The system can then be tested in the loop-back condition and finally the patchcord, or the connectors of the VOA, can be removed and the system connectors replaced. This is a laborious and time consuming process.

It is an object of this invention to provide a transceiver module with an internal loop-back means and VOA which can be controlled remotely, thus not requiring the intervention of a technician and allowing the loop-back testing to be performed quickly and cheaply.

B. Prior solutions (if any) and their disadvantages

Fig.1 shows a transceiver module in which a transmitter, receiver and control electronics are integrated into a housing which has connectors for connection usually to an optical telecommunication system. Instead in Fig.1 the optical telecommunication system has been disconnected and replaced by a patchcord which receives light from the transmitter and directs it to the receiver. The patchcord includes a VOA which attenuates the light. Generally this requires a technician to physically remove the connectors of the optical telecommunication system and replace them with the patchcord. The system can then be tested in the loop-back condition and finally the patchcord can be removed and the system connectors replaced. This is a laborious and time consuming process.

C. Solution offered by the invention and advantages of the invention over what has been done before

In the transceiver module of the invention internal switches can connect the transmitter and receiver to the optical telecommunication system, in which case the transceiver module functions as a standard transceiver module, or can connect the transmitter to the receiver to allow loop-back testing. The switches can be controlled remotely over the digital interface to the transceiver, thus not requiring the intervention of a technician and allowing the loop-back testing to be performed quickly and cheaply.

D. Brief description of how to implement the invention

Fig. 2 shows schematically a transceiver module with integrated optical switches and a loop-back circuit. In Fig. 2a the switches are set to allow propagation from the transmitter into the optical telecommunication system and propagation from the optical telecommunication system into the receiver. Fig. 2b the switches are set to loop-back from the transmitter into the receiver.

Fig. 3 shows in more detail a transceiver module with integrated optical switches and a loop-back circuit. In this embodiment light from the transmitter laser is collimated before being propagated through an optional isolator then focussed into a connector before being propagated onwards into the optical telecommunication system. Similarly light received from optical telecommunication system is collimated then focussed onto the receiver photodetector. Movable mirrors can be positioned in the transmitter collimated beam and the receiver collimated beam to reflect the light from the transmitter laser to the receiver photodetector thus providing a loop-back mode. An optional VOA is positioned between the mirrors to attenuate the light. Any mechanical actuator can be utilized for moving the mirrors between their reflecting and non-reflecting positions. Since the art of micro-machining provides many such mechanisms, particular actuator mechanisms will not be discussed in detail here. Mechanisms that utilize sliding actuators are well known to those in the micro-machining arts. In addition, the mirrors can be positioned on "flip-up" or rotary actuators. The reader is directed to Ming C. Wu, "Micromachining for optical and optoelectronic Systems", IEEE 85, no 11, pp 1833-1856, 1997 for a more detailed discussion of these techniques.

In Fig. 3a the mirrors are set to allow propagation from the transmitter into the optical telecommunication system and propagation from the optical telecommunication system into the receiver. Fig. 3b the mirrors are set to loop-back from the transmitter into the receiver.

Fig.4 Shows an embodiment with an alternative position of the VOA. This has the advantage that the VOA can control the light propagated into the optical telecommunication system as well as in the loop-back mode.

Figure 5 shows an embodiment using only one mirror.

Figure 6 shows an embodiment in which the switches and loop-back are integrated in a planar lightwave circuit (PLC). PLCs are well known and are described in, "Silica-based single-mode waveguides on silicon and their application to guided-wave optical interferometers", *Takato, N., Jinguji, K., Yasu, M., Toba, H., Kawachi, M;* Journal of Lightwave Technology, Volume 6 Issue 6, June 1988, Pages 1003 -1010; "Recent progress on silica-based thermooptic switches for ADMs/XCs", *Goh, T;* LEOS '99; IEEE Lasers and Electro-Optics Society 1999 12th Annual Meeting, Volume 2, 1999, Pages 485-486; "Silica-based planar lightwave circuits"; *Himeno, A., Kato, K., Miya, T;* IEEE Journal on Selected Topics in Quantum Electronics; Volume 4 Issue 6; Nov.-Dec 1998; Pages 913 -924.

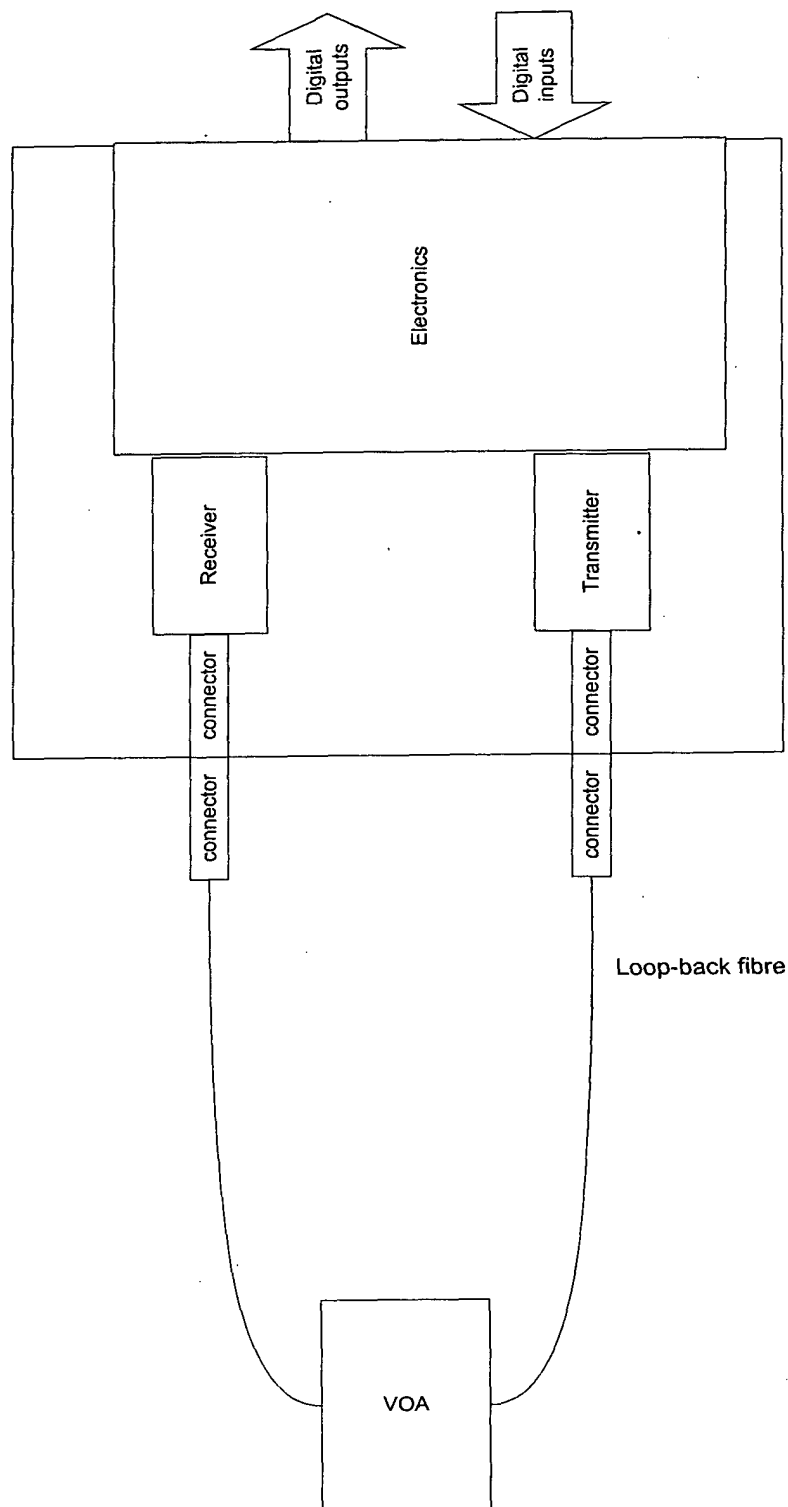


Figure 1

prior art

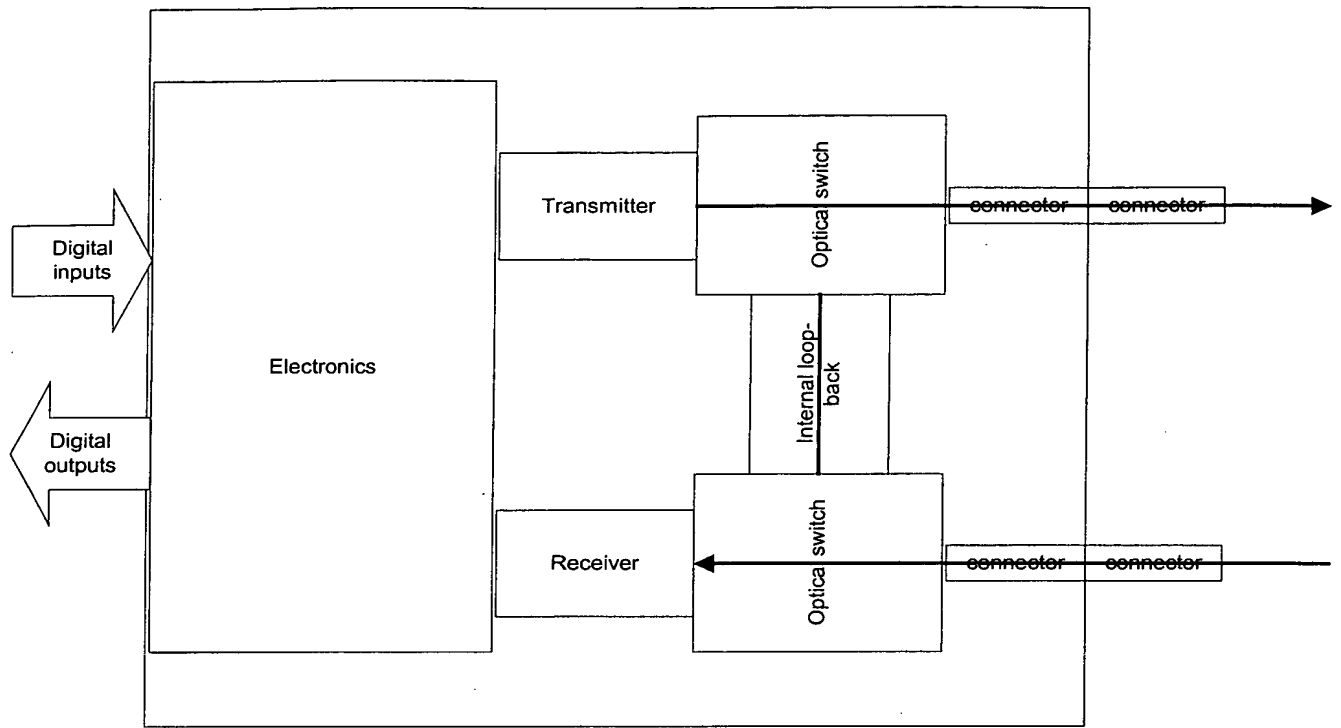


Figure 2a

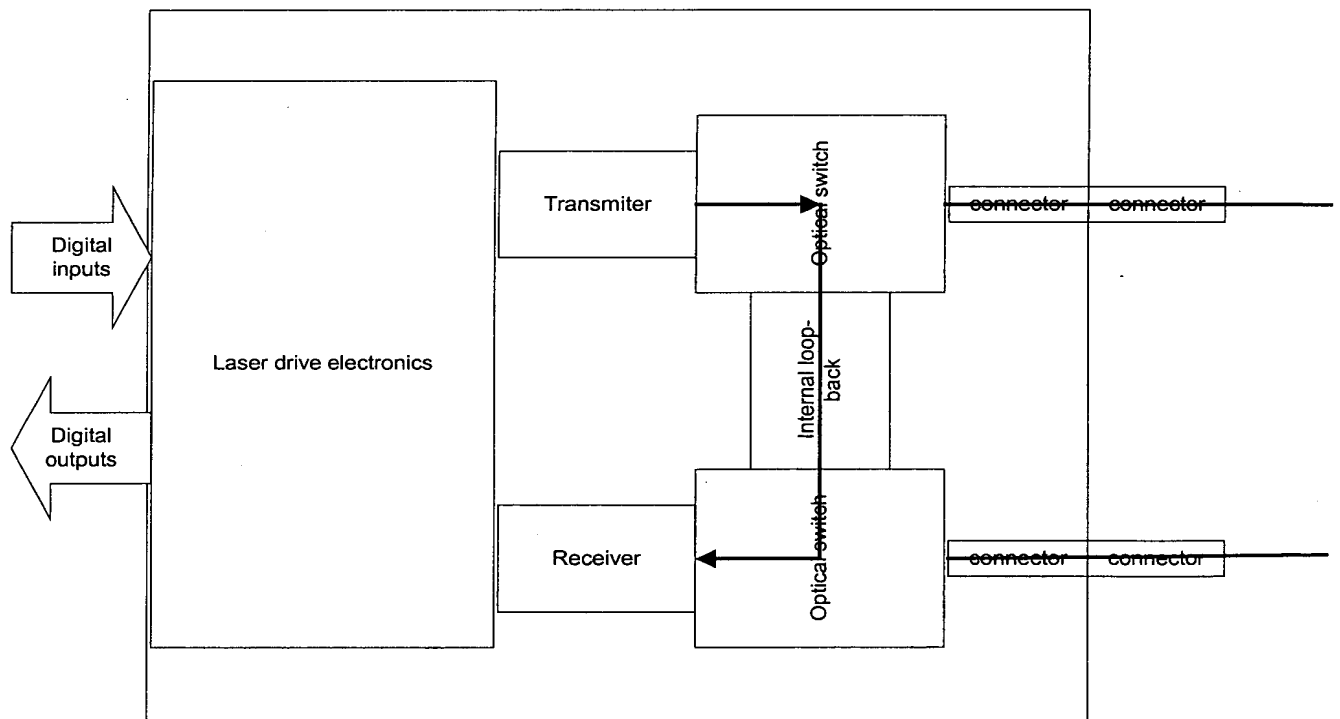


Figure 2b

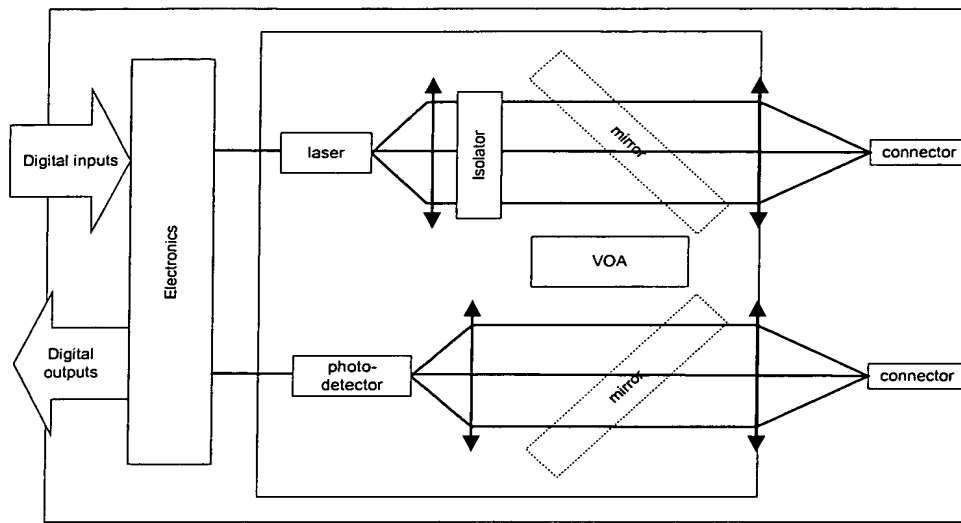


Figure 3a

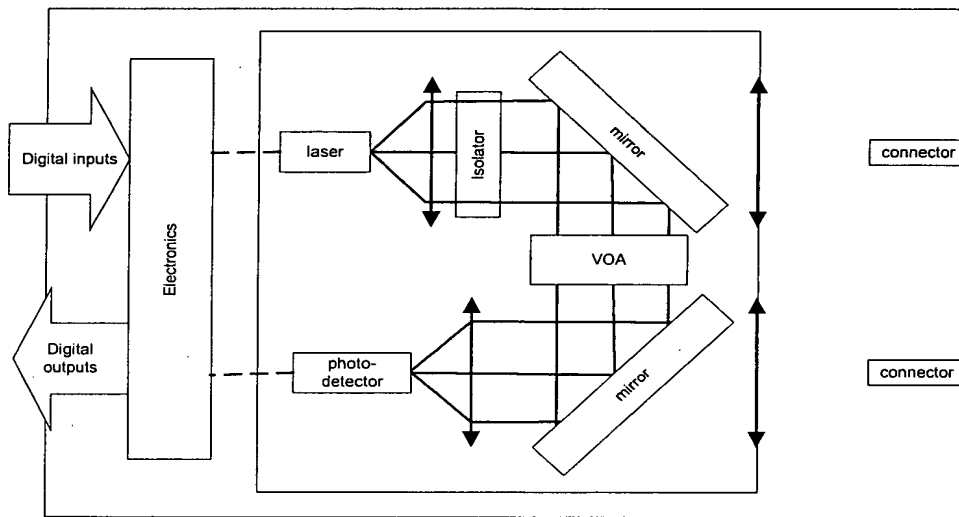


Figure 3b

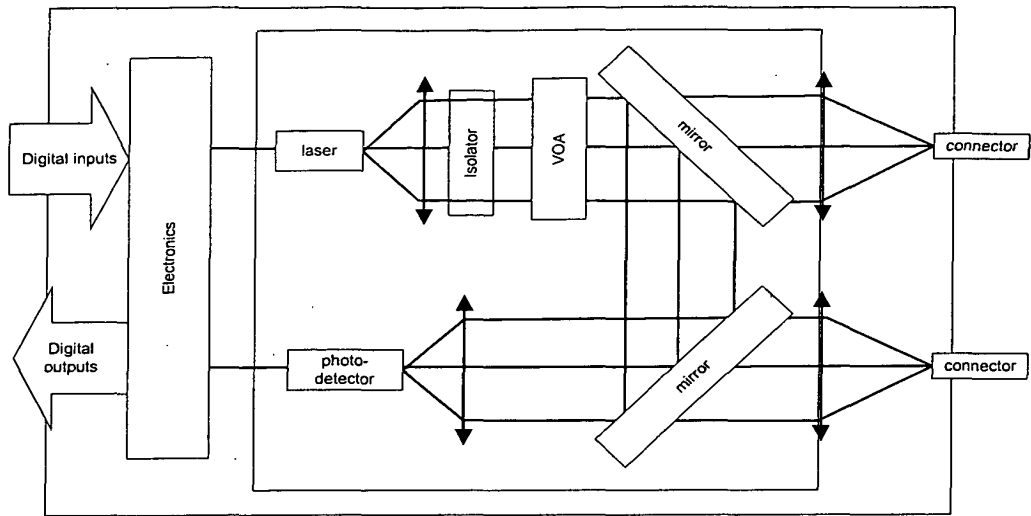


Figure 4

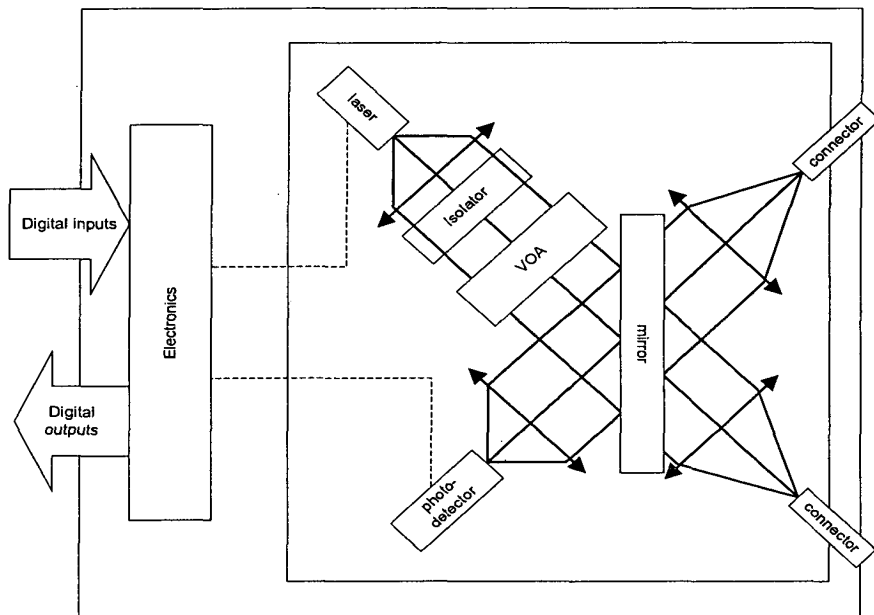


Figure 5

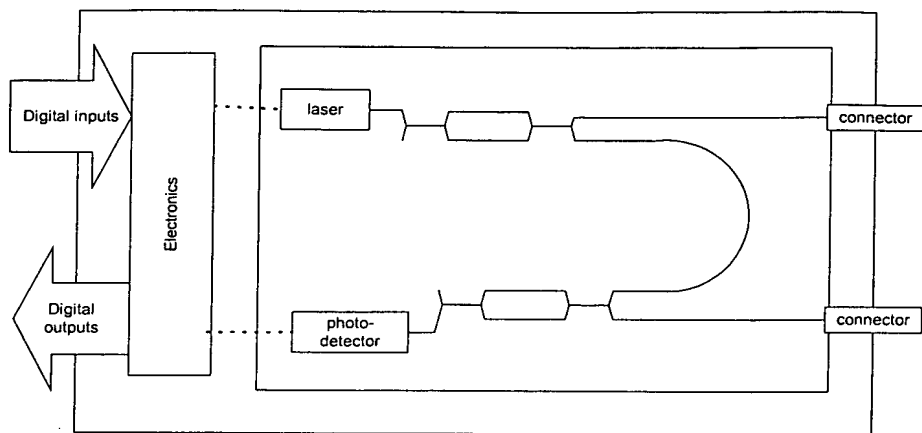


Figure 6